

CLAIMS

What is claimed is:

1. A method comprising:

receiving a plurality of communications along at least one input communication line;

and

framing each communication into a plurality of packets, each packet of said plurality of packets containing destination information related to a destination module for a predetermined amount of data contained within said each packet.
2. The method according to claim 1, wherein each communication of said plurality of communications comprises time division multiplexed (TDM) traffic and data traffic.
3. The method according to claim 2, wherein said framing further comprises:

framing said TDM traffic into at least one packet containing high priority data transmitted during said each communication; and

framing said data traffic into at least one packet containing low priority data transmitted during said each communication.
4. The method according to claim 3, wherein said framing further comprises:

encoding a predetermined value into a priority field within said each packet, said predetermined value indicating a priority of transmission for said predetermined amount of data within said each packet.

5. The method according to claim 4, wherein said priority field within said at least one packet containing high priority data has a zero value.

6. The method according to claim 4, wherein said priority field within said at least one packet containing low priority data has a one value.

7. The method according to claim 1, wherein said framing further comprises:
encoding a destination address field into said destination information of said each packet, said destination address field identifying said destination module for said each packet.

8. The method according to claim 7, wherein said encoding further comprises:
encoding a destination slot field into said destination address field, said destination slot field identifying said destination module for said each packet.

9. The method according to claim 7, wherein said encoding further comprises:
encoding a time slot field into said destination address field, said time slot field indicating one destination time slot of a plurality of destination time slots assigned to an output communication line coupled to said destination module; and
encoding a line field into said destination address field, said line field indicating said output communication line.

17. The method according to claim 16, wherein said destination address field comprises a destination slot field identifying said destination module for said each packet.

18. The method according to claim 16, wherein said destination address field comprises a time slot field, indicating one destination time slot of a plurality of destination time slots assigned to an output communication line coupled to said destination module, and a line field indicating said output communication line.

19. The method according to claim 16, wherein said destination address field comprises a timing source field indicating a predetermined number of timing domains for transmitting said each packet to said destination module.

20. The method according to claim 17, wherein said transmitting further comprises transmitting said each packet to said destination module based on said destination slot field of said destination address field.

21. The method according to claim 18, wherein said transmitting further comprises storing said each packet into one storage module of a plurality of storage modules contained

26. The method according to claim 24, wherein each storage module of said plurality of storage modules is a first-in-first-out (FIFO) storage module.

27. The method according to claim 24, wherein each storage module of said plurality of storage modules has a capacity of four bytes and corresponds to one channel of said output communication line.

28. The method according to claim 25, wherein said timing source field comprises two bits to indicate said predetermined number of timing domains.

29. The method according to claim 28, wherein said timing source field indicates up to four timing domains to transmit said each packet.

30. A system comprising:

means for receiving a plurality of communications along at least one input communication line; and

means for framing each communication into a plurality of packets, each packet of said plurality of packets containing destination information related to a destination module for a predetermined amount of data contained within said each packet.

31. The system according to claim 30, wherein each communication of said plurality of communications comprises time division multiplexed (TDM) traffic and data traffic.

32. The system according to claim 31, further comprising:

means for framing said TDM traffic into at least one packet containing high priority data transmitted during said each communication; and

means for framing said data traffic into at least one packet containing low priority data transmitted during said each communication.
33. The system according to claim 32, further comprising:

means for encoding a predetermined value into a priority field within said each packet, said predetermined value indicating a priority of transmission for said predetermined amount of data within said each packet.
34. The system according to claim 33, wherein said priority field within said at least one packet containing high priority data has a zero value.
35. The system according to claim 33, wherein said priority field within said at least one packet containing low priority data has a one value.
36. The system according to claim 30, further comprising:

means for encoding a destination address field into said destination information of said each packet, said destination address field identifying said destination module for said each packet.

48. The system according to claim 45, wherein said destination address field comprises a timing source field indicating a predetermined number of timing domains for transmitting said each packet to said destination module.

49. The system according to claim 46, further comprising means for transmitting said each packet to said destination module based on said destination slot field of said destination address field.

50. The system according to claim 47, further comprising means for storing said each packet into one storage module of a plurality of storage modules contained within said destination module based on said time slot field and said line field of said destination address field.

51. The system according to claim 50, wherein each storage module of said plurality of storage modules is a first-in-first-out (FIFO) storage module.

52. The system according to claim 50, wherein each storage module of said plurality of storage modules has a capacity of four bytes and corresponds to one channel of said output communication line.

53. A system comprising:

means for retrieving a plurality of packets stored into a plurality of storage modules, each packet of said plurality of packets being retrieved from one storage module of said plurality of storage modules at a rate dictated by a destination address field contained within said each packet; and

means for multiplexing said each packet to obtain a communication to be transmitted along an output communication line.

54. The system according to claim 53, wherein said destination address field comprises a timing source field indicating a predetermined number of timing domains available to transmit said each packet.

55. The system according to claim 53, wherein each storage module of said plurality of storage modules is a first-in-first-out (FIFO) storage module.

56. The system according to claim 53, wherein each storage module of said plurality of storage modules has a capacity of four bytes and corresponds to one channel of said output communication line.

57. The system according to claim 54, wherein said timing source field comprises two bits to indicate said predetermined number of timing domains.

58. The system according to claim 57, wherein said timing source field indicates up to four timing domains to transmit said each packet.

59. A computer readable medium containing executable instructions, which, when executed in a processing system, cause said processing system to perform a method comprising:

receiving a plurality of communications along at least one input communication line;
and

framing each communication into a plurality of packets, each packet of said plurality of packets containing destination information related to a destination module for a predetermined amount of data contained within said each packet.

60. The computer readable medium according to claim 59, wherein each communication of said plurality of communications comprises time division multiplexed (TDM) traffic and data traffic.

61. The computer readable medium according to claim 60, wherein said framing further comprises:

framing said TDM traffic into at least one packet containing high priority data transmitted during said each communication; and

framing said data traffic into at least one packet containing low priority data transmitted during said each communication.

62. The computer readable medium according to claim 61, wherein said framing further comprises:

encoding a predetermined value into a priority field within said each packet, said predetermined value indicating a priority of transmission for said predetermined amount of data within said each packet.

63. The computer readable medium according to claim 62, wherein said priority field within said at least one packet containing high priority data has a zero value.

64. The computer readable medium according to claim 62, wherein said priority field within said at least one packet containing low priority data has a one value.

65. The computer readable medium according to claim 59, wherein said framing further comprises:

encoding a destination address field into said destination information of said each packet, said destination address field identifying said destination module for said each packet.

66. The computer readable medium according to claim 65, wherein said encoding further comprises:

encoding a destination slot field into said destination address field, said destination slot field identifying said destination module for said each packet.

67. The computer readable medium according to claim 65, wherein said encoding further comprises:

encoding a time slot field into said destination address field, said time slot field indicating one destination time slot of a plurality of destination time slots assigned to an output communication line coupled to said destination module; and

encoding a line field into said destination address field, said line field indicating said output communication line.

68. The computer readable medium according to claim 65, wherein said encoding further comprises:

encoding a timing source field into said destination address field, said timing source field indicating a predetermined number of timing domains for transmitting said each packet to said destination module.

69. The computer readable medium according to claim 66, wherein said destination slot field comprises four bits to identify said destination module.

70. The computer readable medium according to claim 67, wherein said time slot field comprises five bits to indicate said one destination time slot.

71. The computer readable medium according to claim 67, wherein said line field comprises five bits to indicate said output communication line.

72. The computer readable medium according to claim 68, wherein said timing source field comprises two bits to indicate said predetermined number of timing domains.

73. A computer readable medium containing executable instructions, which, when executed in a processing system, cause said processing system to perform a method comprising:

receiving a plurality of packets, each packet of said plurality of packets containing destination information related to a destination module for a predetermined amount of data contained within said each packet; and

transmitting said each packet to said destination module based on said destination information.

74. The computer readable medium according to claim 73, wherein said destination information comprises a destination address field identifying said destination module for said each packet.

75. The computer readable medium according to claim 74, wherein said destination address field comprises a destination slot field identifying said destination module for said each packet.

76. The computer readable medium according to claim 74, wherein said destination address field comprises a time slot field, indicating one destination time slot of a plurality of

destination time slots assigned to an output communication line coupled to said destination module, and a line field indicating said output communication line.

77. The computer readable medium according to claim 74, wherein said destination address field comprises a timing source field indicating a predetermined number of timing domains for transmitting said each packet to said destination module.

78. The computer readable medium according to claim 75, wherein said transmitting further comprises transmitting said each packet to said destination module based on said destination slot field of said destination address field.

79. The computer readable medium according to claim 76, wherein said transmitting further comprises storing said each packet into one storage module of a plurality of storage modules contained within said destination module based on said time slot field and said line field of said destination address field.

80. The computer readable medium according to claim 79, wherein each storage module of said plurality of storage modules is a first-in-first-out (FIFO) storage module.

81. The computer readable medium according to claim 79, wherein each storage module of said plurality of storage modules has a capacity of four bytes and corresponds to one channel of said output communication line.

82. A computer readable medium containing executable instructions, which, when executed in a processing system, cause said processing system to perform a method comprising:

retrieving a plurality of packets stored into a plurality of storage modules, each packet of said plurality of packets being retrieved from one storage module of said plurality of storage modules at a rate dictated by a destination address field contained within said each packet; and

multiplexing said each packet to obtain a communication to be transmitted along an output communication line.

83. The computer readable medium according to claim 82, wherein said destination address field comprises a timing source field indicating a predetermined number of timing domains available to transmit said each packet.

84. The computer readable medium according to claim 82, wherein each storage module of said plurality of storage modules is a first-in-first-out (FIFO) storage module.

85. The computer readable medium according to claim 82, wherein each storage module of said plurality of storage modules has a capacity of four bytes and corresponds to one channel of said output communication line.

86. The computer readable medium according to claim 83, wherein said timing source field comprises two bits to indicate said predetermined number of timing domains.

87. The computer readable medium according to claim 86, wherein said timing source field indicates up to four timing domains to transmit said each packet.

88. A system comprising:

a transmission module to receive a plurality of communications along at least one input communication line and to frame each communication into a plurality of packets, each packet of said plurality of packets containing destination information for a predetermined amount of data contained within said each packet;

a packet switch coupled to said transmission module to receive each packet of said plurality of packets and to transmit said each packet to a destination module based on said destination information.

89. The system according to claim 88, further comprising at least one timing device coupled to said packet switch, said transmission module, and said destination module to distribute at least one timing reference to said transmission module and said destination module.

90. The system according to claim 88, wherein said packet switch is a high-speed packet switch.

91. The system according to claim 88, wherein each communication of said plurality of communications includes time division multiplexed (TDM) traffic and data traffic.

92. The system according to claim 91, wherein said transmission module further frames said TDM traffic into at least one packet containing high priority data and said data traffic into at least one packet containing low priority data transmitted during said each communication.

93. The system according to claim 92, wherein said transmission module further encodes a predetermined value into a priority field within said each packet, said predetermined value indicating a priority of transmission for said predetermined amount of data within said each packet.

94. The system according to claim 93, wherein said priority field within said at least one packet containing high priority data has a zero value.

95. The system according to claim 93, wherein said priority field within said at least one packet containing low priority data has a one value.

96. The system according to claim 88, wherein said transmission module further encodes a destination address field into said destination information of said each packet, said destination address field identifying said destination module for said each packet.

97. The system according to claim 96, wherein said transmission module further encodes a destination slot field into said destination address field, said destination slot field identifying said destination module for said each packet.

98. The system according to claim 96, wherein said transmission module further encodes a time slot field into said destination address field, said time slot field indicating one destination time slot of a plurality of destination time slots assigned to an output communication line coupled to said destination module and further encodes a line field into said destination address field, said line field indicating said output communication line.

99. The system according to claim 96, wherein said transmission module further encodes a timing source field into said destination address field, said timing source field indicating a predetermined number of timing domains for transmitting said each packet to said destination module.

100. The system according to claim 97, wherein said destination slot field comprises four bits to identify said destination module.

101. The system according to claim 98, wherein said time slot field comprises five bits to indicate said one destination time slot.

102. The system according to claim 98, wherein said line field comprises five bits to indicate said output communication line.

103. The system according to claim 99, wherein said timing source field comprises two bits to indicate said predetermined number of timing domains.

104. The system according to claim 97, wherein said packet switch further transmits said each packet to said destination module based on said destination slot field of said destination address field.

105. The system according to claim 98, wherein said packet switch further stores said each packet into one storage module of a plurality of storage modules contained within said destination module based on said time slot field and said line field of said destination address field.

106. The system according to claim 105, wherein each storage module of said plurality of storage modules is a first-in-first-out (FIFO) storage module.

107. The system according to claim 105, wherein each storage module of said plurality of storage modules has a capacity of four bytes and corresponds to one channel of said output communication line.

108. The system according to claim 88, wherein said destination module further retrieves said each packet stored into one storage module of a plurality of storage modules at a rate dictated by a destination address field encoded into said destination information of said each

packet and multiplexes said each packet to obtain an output communication to be transmitted along an output communication line.

109. The system according to claim 108, wherein said destination address field comprises a timing source field indicating a predetermined number of timing domains available to transmit said each packet.

110. The system according to claim 109, wherein said timing source field comprises two bits to indicate said predetermined number of timing domains.

111. The system according to claim 109, wherein said timing source field indicates up to four timing domains to transmit said each packet.

112. The system according to claim 89, wherein said transmission module and said destination module operate at a predetermined rate dictated by said at least one timing reference.

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